

Remarks/Arguments:

I. Status of the Application and Claims

Claim 1 is amended herein to correct an inadvertent typographical error. New Claim 10 has been added, which recites that the first electrode layer contains platinum and at least one of titanium and titanium oxide. Support for this amendment is found throughout the application as filed. For example, see page 4, lines 23-25, and page 7, line 21, of the substitute specification. No new matter has been introduced. Claims 5-9 were previously cancelled. As a result, Claims 1-4 and 10 remain pending and under examination in the application.

II. Rejection of Claims 1-4 as Allegedly Obvious

Applicants traverse the rejection of Claims 1-4 under 35 U.S.C. §103(a) as being unpatentable over Fujii et al. (WO 2003/052840; "the Fujii Reference") in view of Watanabe et al. (U.S. Pat. No. 6,153,898; "the Watanabe Reference") and Shimada et al. (U.S. Pat. No. 5,802,686; "the Shimada Reference"). Reconsideration and withdrawal of the rejection are respectfully requested in view of the claim amendments and arguments presented herein.

As reflected in amended Claim 1, Applicants' invention is directed to an angular velocity sensor comprising:

a substrate made of single crystal silicon and having a tuning fork shape, the substrate including

a plurality of arms extending in parallel with each other, and

a joint section for connecting respecting ends of the arms with each other;

a barrier layer provided on each of the plurality of arms of the substrate, the barrier layer containing silicon oxide;

a first adhesion layer provided on the barrier layer, the first adhesion layer containing titanium;

a first electrode layer provided on the first adhesion layer, the first electrode layer containing platinum and at least one of titanium and titanium oxide;

an orientation control layer provided on the first electrode layer;

a piezoelectric layer provided on the orientation control layer;

a second adhesion layer provided on the piezoelectric layer; and

a second electrode layer provided on the second adhesion layer.

According to the Examiner, the Fujii Reference does not disclose two components of Claim 1:

1). The Examiner acknowledges that the Fujii Reference does not disclose "a barrier layer provided on each of the plurality of arms of the substrate, the barrier layer containing silicon oxide." The Watanabe Reference is relied upon to disclose this feature. This reference discloses a ferroelectric capacitor containing a "diffusion preventing" layer of silicon dioxide between a silicon substrate and a bonding layer of titanium, with a lower electrode on top of the titanium bonding layer. The Examiner argues that a skilled person would find it obvious to utilize such a silicon oxide layer in a similar location in the structure taught by the Fujii reference, for the purpose of preventing diffusion. However, the Watanabe Reference relates to ferroelectric capacitors, not angular velocity sensors. These are two unrelated technical fields. A person of ordinary skill in the art would not look to the ferroelectric capacitor field for assistance in solving a problem in the angular velocity sensor field.

2). The Examiner further acknowledges that the Fujii Reference does not disclose "a second adhesion layer provided on the piezoelectric layer." The Shimada Reference is relied upon to disclose this feature. This reference discloses a device in which an adhesion layer is formed between a piezoelectric layer and an upper electrode to enhance the adhesivity between these two layers. The Examiner believes it would have been obvious to similarly employ an adhesion layer between the piezoelectric and upper electrode layers in the structure described in the Fujii Reference. However, the Shimada Reference relates to printer heads for ink jet recording that are structurally very different from the angular velocity sensor claimed in the present application. For example, the Shimada Reference devices do not have a substrate having a tuning fork shape and including a plurality of arms extending in parallel with each

other. These significant differences would prevent a skilled person from using the Shimada Reference to modify the structures disclosed in the Fujii Reference.

III. Conclusion

The application is believed to be in condition for allowance. If any issues remain, the Examiner is invited to contact Applicants' legal representative at the telephone number listed so that such issues may be discussed and resolved.

Respectfully submitted,



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